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Knowledge and misconceptions on cervical cancer and its prevention among female undergraduates in Sa'adu Zungur University, Bauchi State, Nigeria

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ABSTRACT: Cervical cancer is a significant public health concern, particularly among young women**.** The study aims to assess the level of knowledge and misconceptions about cervical cancer and its prevention among female undergraduate students of Sa'adu Zungur University Bauchi. A descriptive cross-sectional design was adopted. The study targeted 103 participants from the total population using a standard for calculating the sample size. A structured questionnaire was used for data collection. The study observed that the majority of the respondents 49 (47.6 %) had heard about cervical cancer, 51 (49.5%) did not know that cervical cancer is preventable, 42 (40.8%) did not know that the HPV vaccine can prevent cervical cancer, 48 (46.6%) did not know that safe sex practice can prevent cervical cancer. The study highlights the need for targeted intervention to improve cervical cancer prevention among female undergraduate students of Sa'adu Zungur University. Despite some little knowledge about cervical cancer, there are significant gaps in awareness about its cause, screening and vaccination. The findings suggested that education and awareness campaigns, access to free or low-cost screening and vaccination, and addressing cultural and social barriers are crucial to improving cervical cancer prevention. This study provides valuable insight into cervical cancer prevention strategies among female undergraduate students of Sa'adu Zungur University Bauchi State. The university management should put the recommendation made in practice within both campuses. Finally, to address cultural and social barriers to cervical cancer prevention, promote awareness campaigns and encourage interdisciplinary collaboration to develop comprehensive cervical cancer prevention strategies.

Keywords: Bauchi State, cervical cancer, female, prevention.

INTRODUCTION

Cancer is a global health issue and the most common non-communicable disease. Approximately one-third of it is preventable, another third is potentially curable if detected early, and the remaining third is incurable but managed with palliative care to improve the quality of life (Akinkugbe *et al*., 2010). Furthermore, cervical cancer is a slow-growing malignancy that, if detected early during the pre-cancerous stage, is treatable with a favourable prognosis.

Globally, cervical cancer is the fourth most common cancer among women, with approximately 660,000 new cases and about 350,000 deaths recorded in 2022. Notably, 94% of these deaths occurred in low- and middle-income countries (LMICs) (WHO, 2024). Cervical cancer is the most preventable disease, yet it remains the second most common cancer worldwide, with over 500,000 new cases and 250,000 deaths annually (WHO, 2009). CC can be avoided through primary prevention, which is the Human Papillomavirus (HPV) vaccination and by engaging in secondary prevention by attending cervical screening (CS) (Anttila *et al*., 2018).

Cancer is becoming more common in many parts of the world, despite significant disparities between developed and developing countries, such as Nigeria. Although incidence rates remain highest in more developed countries, fatality rates in less developed countries are substantially higher due to a lack of early identification and treatment resources (Musa, 2022). Nigeria has the highest number of incidence cases and deaths from cervical cancer in Africa, with 12,075 new cases and 7968 deaths, which makes it one of the eight countries with the largest number of incidence cases in the world**.**

Cervical cancer is typically caused by the human papillomavirus (HPV), which is a common sexually transmitted infection. HPV can cause genetic changes in the cervix, leading to abnormal cell growth and cancer (American Cancer Society, 2022). Cervical cancer begins when healthy cells on the surface of the cervix change or become infected with the human papillomavirus (HPV) and grow out of control, forming a mass called a tumour on the cervix (Rabiu and Yahuza 2022). According to the American Cancer Society (2022), there are several types of cervical cancer, which include squamous cell carcinoma (the most common type), adenocarcinoma, aden squamous carcinoma, small cell carcinoma, large cell carcinoma, papillary carcinoma, clear cell carcinoma, serous carcinoma and glassy cell carcinoma. The symptoms of cervical cancer include abnormal bleeding, such as bleeding after sex, bleeding after menopause, unusual discharge, pelvic pain, pain during sex, pain in the lower abdomen or pelvis, painful urination, pain or burning sensation while urinating, abnormal pap test results and abnormal cell changes in the cervix (American Cancer Society, 2022).

Numerous risk factors have been linked to cervical cancer, including educational status, place of residence, using old sanitary napkins, sexually transmitted infections, multiple male sexual partners, non-access to cervical cancer screening, commencing sexual intercourse at an early age, cigarette smoking and long-term use of oral contraceptives and smoking (WHO, 2024). The World Organization recommends the following measures to lower the burden of cervical cancer: (1) primary prevention (HPV vaccination f or girls aged 9–14 years, so they are protected before they become sexually active), (2) secondary prevention (screening and treatment of pre-cancerous lesions), (3) tertiary prevention (diagnosis and treatment of invasive cervical cancer) and (4) palliative care (WHO, 2019).

Therefore, the objectives of the study is to assess the level of knowledge and misconceptions about cervical cancer and its prevention among female undergraduate students of Sa'adu Zungur University Bauchi.

METHODOLOGY

Study area, design and population

Sa'adu Zungur University Bauchi was established in 2011 but took up in January 2012 as a multi-campus university with 3 campuses, namely, Misau, Bauchi (Yuli) and Gadau (main campus). It is located in the northeastern part of Nigeria in Bauchi State, located on latitude 11.533ºN and longitude 9.9333ºE, with a total population of 21,180 students.

This study was a case study assessing the knowledge and misconceptions about cervical cancer and its prevention among female undergraduate students at Sa'adu Zungur University, Bauchi. The study adopted a survey research design for the collection of data. A survey research design is a method of collecting data by asking people questions about their attitudes, opinions, behaviours, and experiences; it also involves designing and administering a questionnaire or interview to a sample of the population and then analyzing the responses to draw conclusions about the larger population.

The study population was defined as the specific group of individuals or cases that are being studied in a research investigation. The study targeted one hundred and three (103) participants out of the female undergraduate students of Sa'adu Zungur University, which includes students from all three campuses. A descriptive cross-sectional survey design was used in the study, where data were gathered on knowledge and misconceptions about cervical cancer and its prevention among female undergraduates at Sa'adu Zungur University, Bauchi. The research design was applicable in this study because it allows for collecting data from many participants at the same time and also its inexpensive design compared to others.

Sampling technique

A simple random sampling technique was used in selecting the respondents. Sampling techniques are methods used to select a subset of individuals or units from a larger population for the purpose of conducting research. The goal of sampling techniques is to obtain a representative sample that reflects the characteristics of the population, allowing researchers to generalize their findings to the population as a whole (Best and Khan, 1995).

Data collection method, management and analysis

The questionnaire was distributed to the respondents with the help of the research assistants who had been trained by the researcher on how to carry out this task. The test-retest method was used to determine the reliability of the instrument. The test was conducted through a pilot study by administering the instrument to people in Federal University Dutse, Jigawa outside the study area. After two weeks, the same instrument was administered in the study area. The data collected was analyzed using descriptive statistics. The study was carried out from March to May 2024.

Ethical consideration

Ethical issues of this research were maintained. Written and verbal consent was taken before data collection. Also, the study was approved by the Department of Public Health, Sa'adu Zungur University, Bauchi.

RESULTS

Table 1 shows the knowledge of cervical cancer among female undergraduate students of Sa'adu Zungur University Bauchi. The majority of the respondents, 49(47.6%) have heard about cervical cancer, while 42(40.8%) have not heard about cervical cancer, and only 12(11.6%) do not know anything about cervical cancer. Moreover, only 36(34.9%) of the respondents know that the HPV vaccine can prevent cervical cancer, 42(40.8%) of the respondents do not know that the HPV vaccine can prevent cervical cancer, the remaining 25(24.3%) do not know anything concerning HPV vaccine and cervical cancer prevention. Furthermore, only 22(21.4%) of the respondents have heard about cervical cancer screening, while 53(51.4%) have not heard about cervical cancer screening, and the remaining 28(27.2%) of the respondents do not know anything about cervical cancer screening.

The minority of the respondents, 18(17.5%) know that safe sex practice can prevent cervical cancer, and 48(46.6%) of them do not know that safe sex practice can prevent it. Also, 37(35.9%) of respondents do not know anything regarding safe sex practices and cervical cancer prevention. 24(23.3%) of the respondents know that having multiple sexual partners, use of tobacco, having first sex at an early age and having many pregnancies are among the risk factors for cervical cancer. Also, 31(30%) of them did not know that having multiple sexual partners, use of tobacco, having first sex at an early age and having many pregnancies are among the risk factors for cervical cancer but the remaining 48(46.6 %) of the respondents do not know anything about the risk factors of cervical cancer. Finally, 26(25.2%) of the respondents know that heavy vaginal bleeding, foul smells, vaginal discharges, vaginal bleeding in between periods, and vaginal bleeding after menopause are among the symptoms of cervical cancer. Also, 28(27.2%) of them do not know about the symptoms of cervical cancer, and the remaining 49(47.6%) do not know anything regarding cervical cancer symptoms at all. Table 2 presents students' misconceptions of cervical cancer prevention strategies among female undergraduate students of Sa'adu Zungur University Bauchi. From the results, 38 (36.9%) of the respondents perceived that they are susceptible to cervical cancer, 33 (32%) strongly agree that they are susceptible to cervical cancer, 14(13.6%) are neutral, 8(7.8%) did not agree that there are susceptible to cervical cancer while 10 (9.7%) of the respondents strongly disagree that are not susceptible to cervical cancer. Also, 29 (28.1) of the respondents agree that cervical cancer screening is important to their health and well-being, 19(18.4%) strongly agree, 30(29.1%) are neutral, 15(14.6%) disagree, 10(9.7%) strongly disagree that cervical cancer screening is important to their health and wellbeing. Also, 14(13.6%) agree that regular pap smears and HPV vaccination prevent cervical cancer, 18(17.5%) of the respondents strongly agree, 13(12.6%) are neutral, 41(39.8%) do not agree, and 17(16.5%) strongly disagree. Moreover, 33(32%) of the respondents are willing to go for HPV immunization, 21(20.4%) are strongly willing, 12(11.6%) are neutral, 18(17.5%) did not agree to go for HPV immunization while the remaining 19(18.5%) of them strongly disagree to go for HPV vaccination. More so, 22(21.4%) of the respondents agree that women who did not receive the HPV vaccine can contract cervical cancer later in life, 17(16.5 %) strongly agree, 14(13.6%) are neutral, 32(31%) disagree while the remaining 18(17.6%) of them strongly disagree. Also, 16(15.5%) of the respondents agree that safe sex practice can prevent cervical cancer, 22(21.3%) strongly agree, 30(29.1%) are neutral, 18(17.5%) disagree, while the remaining 17(16.5%) of the respondents strongly disagree. Moreover, 28(27.1%) of the respondents agree that cervical cancer is fate or destiny that cannot be changed, 18(17.5%) strongly agree, 27(26.2%) are neutral, 12(11.6%) disagree and only 18(17.5%) strongly disagree. 30(29.1%) of the respondents agree that prevention efforts toward cervical cancer are unnecessary or ineffective, 13(12.6%) strongly agree, 22(21.3%) are neutral, 23(22.3%) disagree and 15(14.6%) strongly disagree. 20(19.4%) of the respondents agree that they felt ashamed or stigmatized to go for a cervical cancer screening test, 19(18.5%) strongly agree, 38(36.9%) are neutral, 12(11.6%) disagree while the remaining 14(13.6%) of them strongly disagree.

Table 3 presents students' cervical cancer prevention strategies among female undergraduate students of Sa'adu Zungur University Bauchi. Based on the results, 12(11.7%) of the respondents have undergone a cervical cancer screening test, 57(55.3%) have not, 14(13.6%)

Table 1. Knowledge of cervical cancer prevention strategies of the respondents.

Statement	Yes	%	No	%	I don't know	%
Have you heard about cervical cancer	49	47.6	42	40.8	12	11.6
Do you know that cervical cancer is preventable	44	42.7	51	49.5	8	7.8
Do you know that HPV vaccine can prevent cervical cancer	6	34.9	2	40.8	25	24.3
Have you heard about cervical cancer screening	22	21.4	53	51.4	28	27.2
Do you know that safe sex practice can prevent cervical cancer	48	46.6	18	17.5	37	35.9
Do you know that having multiple sexual partner, use of tobacco, first sex at early age and having many pregnancies are among the risk factors of cervical cancer	31	30	24	23.3	48	46.6
Do you know that having vaginal bleeding, foul smelling, vaginal discharge, vaginal bleeding in between the period, vaginal bleeding after menopause is among the symptoms of cervical cancer	28	27.2	49	47.6	67	25.2

Table 2. Attitude of cervical cancer prevention strategies.

Statements	A	%	SA	%	N	%	DA	%	SD	%
Do you perceived that you are susceptible to cervical cancer	38	36.9	33	32	14	13.6	8	7.8	10	9.7
Do you agree that cervical cancer screening is important to your health and well-being	29	28.1	19	18.4	30	29.1	15	14.6	10	9.7
Do you agree that regular pap smear and HPV vaccination prevent cervical cancer	14	13.6	18	17.5	13	12.6	41	39.8	17	16.5
Do you willing to received HPV immunization	33	32	21	20.4	12	11.6	18	17.5	19	18.5
Do you agree that women that did not received HPV vaccine can contract cervical cancer later in life	22	21.4	17	16.5	14	13.6	32	31	18	17.5
Do you agree that safe sex practice can prevent women from cervical cancer	16	15.5	22	21.3	30	29.1	18	17.5	17	16.5
Do you agree that cervical cancer is a fate or destiny that cannot be change	28	27.1	18	17.5	27	26.2	12	11.6	18	17.5
Do you agree that prevention efforts toward cervical cancer are unnecessary or ineffective	30	29.1	13	12.6	22	21.3	23	22.3	15	14.6
Do you feel ashamed or stigmatized to go for a cervical cancer screening test?	20	19.4	19	18.5	38	36.9	12	11.6	14	13.6

have not undergone a cervical cancer screening test but are willing to do it, and 20(19.4%) have not undergone a cervical cancer screening test due to the other reasons. Also, 7(6.9%) of the respondents have undergone a regular pap smear test or HPV testing, 63(61.1%) of the respondents have not, 24(23.3%) have not but are willing to do so, and 9(8.7%) have not undergone regular pap smear test or HPV testing for other reasons.

Furthermore, 18(17.5%) of the respondents have received a HPV immunization, 58(56.3%) have not, 22(21.4%) have not but are willing to do so, and 5(4.8%) have not received a HPV immunization for other reasons. Moreover, the respondents reasons for cervical cancer screening are, 8(7.7%) of the respondents did a cervical cancer screening test because it is part of the gynaecological screening, 6(5.8%) did cervical cancer screening because doctors requested it, 2(1.9%) of the respondents did cervical cancer screening test because it was free, 3(2.9%) of them did it because they heard about it and they fell they should do it, and the remaining 84(81.6%) indicate "others" as the reason for doing it.

The respondents' reasons for not doing cervical cancer screening test are, 20(19.4%) were not aware of cervical cancer screening, 23(22.4%) did not have any symptoms, 5(4.8%) lack of funds, 13(12.6%) ignorance, 18(17.5%) do not have access to the health care facility, and the remaining 24(23.3%) indicated "others" as the reason for not doing it.

The respondents' reasons for receiving HPV immunization are, 16(15.5%) say it prevents cervical cancer, 21(20.4%) say it was free, 10(9.7%) say It was safe and effective, 56(54.4%) gave others as their reason. The respondents' reasons for not receiving HPV immunization are, 9(8.7%) indicate that It causes infertility, 16(15.5%) said it is not safe, 18(17.5) indicated that there are personally humane, 21(20.4%), do not have access to health care facility where vaccine is given, and the remaining 39(37.9%) indicated others as their reason.

Table 3. Practice on cervical cancer prevention strategies.

Statement		YES	%	NO	%	No, but willing to do it	%	Other	%
Have you undergone a cervical cancer screening test		12	11.7	57	55.3	14	13.6	20	19.4
If yes, Do you undergo a regular pap smear test or HPV testing		7	6.9	63	61.1	24	23.3	9	8.7
Have you received a HPV immunization		18	17.5	58	56.3	22	21.4	5	4.8
What is your reason for doing a cervical cancer screening test	It's part of gynecological Screening			8	7.8%				
	Doctors request for it			6	5.8%				
	Becouse its free			2	1.9%				
	They heard about it and they felt they should do it			3	2.9%				
	Others			84	81.6%				
What is your reason for not doing a cervical cancer screening test	They were not aware of cervical cancer screening			20	19.4%				
	They did not have any symptoms			23	22.4%				
	Lack of funds			5	4.8%				
	Ignorance			13	12.6%				
	They don't have access to health care facility			18	17.5%				
	Others			24	23.3%				
What is your reason for receiving HPV immunization	it prevents cervical cancer			16	15.5%				
	It's free			21	20.4%				
	It's safe and effective			10	9.7%				
	others			56	54.4%				
What is your reason for not receiving HPV immunization	It causes infertility			9	8.7%				
	It's not safe			16	15.5%				
	I'm personally humane			18	17.5%				
	I don't have access to the health care facility where vaccine is given			21	20.4%				
	Others			39	37.9%				

DISCUSSION

This study assesses the knowledge and the perception of female students on the preventive measures of cervical cancer in the study area to relate and identify similarities with previous studies. The majority of the respondents 51(49.5%) do not know that cervical cancer is preventable. Mass education on simple tips for the prevention of cervical cancer in the study area should be given priority.

The majority of the respondents 42(40.8%) do not know that the HPV vaccine can prevent cervical cancer. This is in line with the report of Rosenthal *et al.* (2008) that increased knowledge of HPV and its link with cervical cancer was associated with increased acceptance of the vaccine, and lack of awareness would be expected to be a barrier to vaccine uptake. The role of HPV vaccine for cervical cancer prevention remains the better means for the prevention of cancer, there vaccination should follow immediately after awareness of enlightenment for cervical cancer.

The majority 48(46.6%) of the respondents do not know anything about the risk factors of cervical. This was consistent with the findings of the National Cancer Institute (2005). Health Information National Trends Survey in the United States showed that 20% of American women were aware that HPV can cause cervical cancer (Lambert, 2001). Therefore, there is a need to educate young women on the role of HPV in the prevention of cancer. Healthcare workers at the clinic can educate healthcare users, targeting the risk population on risk factors for cervical cancer and motivating them to have a Pap smear performed (Al-Naggar *et al.,* 2010).

From the results, 49(47.6%) of the respondents do not know anything regarding cervical cancer symptoms. This is because symptoms associated with cervical cancer usually present in middle-aged women, with progression from precancerous lesions to invasive cancer occurring over a period of 10 to 15 years (Friedman and Shepeard, 2007).

The majority, 57 (55.3%) of the respondents have not undergone a cervical cancer screening test. This was associated with little knowledge of cervical cancer. The

majority, 63(61.1%) of the respondents have not undergone a regular pap smear test or HPV testing. The pap smear test is the main screening method used for the secondary prevention of cervical cancer. It can detect precancerous cells easily (Kotaniemi-Talonen *et al.*, 2008). Pap smears effectively reduce the incidence of cervical cancer by 75-90% (Risendal *et al*., 1999). Finally, cervical cancer requires clear address to females in general in order to prevent the consequences of this critical condition.

Conclusion

This study highlights the need for targeted interventions to improve cervical cancer prevention among female undergraduate students of Sa'adu Zungur University Bauchi. Despite some little knowledge about cervical cancer prevention strategies, there is a significant gap in awareness about its cause, screening, and vaccination. The findings suggest that education and awareness campaigns, access to free or low-cost screening and vaccination, and addressing cultural and social barriers are crucial to improving cervical cancer prevention.

Recommendation

This study provides valuable insights on knowledge and misconception on cervical cancer prevention strategies among female undergraduate students in Sa'adu Zungur University Bauchi state. This study provides and informs evidence-based strategies to reduce the burden of cervical cancer in this university. Integrate cervical cancer education into university health programs**,** increase access to cervical cancer screening and vaccination on the university Campus**,** address cultural and social barriers to cervical cancer prevention**,** promote awareness campaigns to increase knowledge and attitudes towards cervical cancer prevention, and encourage interdisciplinary collaboration to develop comprehensive cervical cancer prevention strategies.

CONFLICT OF INTEREST

All authors declared that they have no conflict of interest.

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